

TSSG/APSD/IEB-040/70
11 March 1970

MEMORANDUM FOR THE RECORD

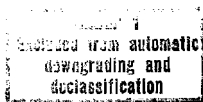
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SUBJECT: Evaluation of the [REDACTED]
Original Negative Evaluation

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A. The comments in this section relate, by number, to specific items in the [REDACTED] report as presented in the attachment to this memorandum.

1. What are these interests and how does this report accomplish this end?
2. Does this mean that the evaluation is not interested in quality control of the product but rather in justifying the PI's ability to interpret the target?
3. The use of the target catalogue as a listing of areas to be evaluated is quite sound provided that an MIP type of quality judgment is not the aim.
4. What type/extent of data collection?
5. How does micro-d correlate with interpretability as it concerns the PI?
6. I somehow missed this relationship.
7. This seems to be the most valid use of the procedures presented, but how much sampling would be required to produce a valid result? Would it be necessary to trace the ON and DP in the same location to draw a correlation?
8. Pertaining to what parameters - interpretability?
9. Seems like we would be checking exposure in areas where the exposure is good, if so how does this account for the interpretability in areas of poor exposure?
10. I agree and if this statement is valid, how can the micro-d/ macro-d evaluation be supported?
11. What is this relationship?



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11B. Sounds like a good idea but where does the report accomplish this?

12. How does one go about this? And then to what use can the information be put?

13. How do we relate this to quality of interpretability.

14. If one assumes this is true, then the methods described in the report are all valid.

15. Is the analysis based on such cold, hard facts as: probability distribution, estimate of duplicate tri-bar resolution, estimated duplicate tri-bar resolution, probability distribution, integrating, probability distribution?

B. Additional Comments

1. What influence does target environmental condition play in the quality of interpretability?

2. What part does weather condition play in the statistical evaluation of the mission quality when the data is from a sampling of individual targets?

3. How does micro-d analysis, MTF, AIM curve and tonal trace data establish the image quality in respect to interpretation suitability. If this can be established, it would replace the MIP system with one which is completely objective.

4. The text describes the data to be collected and the manner of manipulation to be employed but leaves the analysis of the mission performance (in terms of image quality/suitability) up in the air.

5. When all of the micro-macro analysis results are acquired, what exactly can we say about the image quality, relative to the PI, of the mission?

6. As it now stands, what really is all of this analysis going to tell us about the PI suitability (image quality) of the mission?

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7. The type of data suggested for collection would form an interesting data base for future studies but I do not see how this data can presently be utilized to produce an indication of mission quality, pertaining to PI suitability.

8. The parameters, measured as proposed, may aid in establishing a mensuration accuracy statement for the mission and possibly per target. This would be a reliable estimate since mensuration equipment is similar to that employed to generate the estimate.

9. If a means of converting specular density to diffuse density is available, then the use of the proposed methods for checking duplication per specifications is possible.

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10. Before adoption of the [REDACTED] analysis method (or portion thereof) for inclusion in the APSD PER for the purpose for its inclusion should be understood. One reason for accomplishing the work involved and publishing the analysis in the PER would be to satisfy the request of a PER recipient. Is there a request for this information/analysis? A second reason for its inclusion would be to provide additional information for our analysis of the mission. Presently, what can we say about the analysis results in regard to image quality? Since I know of no absolute correlation between the two (objective and subjective), I feel we would be just stating the objective analysis results to permit others, if they are so inclined, to draw their own conclusions. We did this very thing in years past when microdensitometric traces and the line spread functions of the MIP frames were included in the PERs. These have long since been deleted. The third and most valid purpose for accomplishing the tracing and following analysis seems to be as part of a study to determine what (if any) correlation exists between the objective measures as outlined by [REDACTED] and the subjective analysis of APSD and IEG. Once a correlation is established, the objective measures will have meaning in terms of PI image quality and thus will be an extremely important tool in mission evaluation and an important part of the PER. The correlation study previously mentioned is a gigantic undertaking and the question of how it should be undertaken, for that matter if it should be undertaken and if so who

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should do it, is up to management personnel, but if we are ever to use objective means to measure subjective quality it is a necessity.

11. Use of the density and exposure information seems most valid provided that a method of employment is established prior to implementation. Here again we must know how we wish to use the information prior to its collection and analysis. Would it be valid to check the tone reproduction cycle with a microdensitometer when the production facility bases its reproduction parameters on the reading of the [REDACTED] Scanner?

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C. Summation

The evaluation techniques/methods proposed in this report seem to be a valid means of obtaining quantitative measurement of image parameters. As a final output, we have a numeric or graphic expression of these parameter values, which, I believe, when conveyed to the intelligence community will tell them little or nothing about the interpretation quality of the mission material. To be of value, it will be necessary to relate the MTF, AIM Curve, tonal characteristics, etc. in photographic interpreter terminology. An alternative would be to formulate a data base of these parameters and equate their values to the photographic interpreters impression/estimation of image quality.

As it stands, the tonal rendition section of the report is valid and useful as a means of determining the fidelity of tone reproduction and whether the reproduction is within duplication specifications. It does not, however, necessarily indicate the interpretation suitability of the original or duplicate.

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As it stands, the [REDACTED] report leaves me up in the air with numerous quantitative values but no means of relating them to the image quality the photographic interpreter utilizes. The interaction between parameters and relationship of the parameter values to image interpretation quality must be known before the values have meaning as true indicators of practical image quality. The [REDACTED] report includes no such correlation.

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If it is our intent to compile a data base which, through other studies, may be correlated with image interpretation quality, then the methods/techniques as stated in the report seem valid and useful.

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[REDACTED]
Image Evaluation Branch
APSD/TSSG/NPIC

Attachment: a/s

Distribution:

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1 - NPIC/TSSG/APSD/IEB, Chrono 3/70, w/a
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NPIC/TSSG/APSD/IEB [REDACTED] (11 March 70)

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